

Claims

1. A target assembly removably mountable in an opening in a wall of a vacuum chamber for processing a substrate by causing sputtering material to be ejected from the target assembly onto the substrate, comprising:

an adapter having a supporting wall, an outer flange extending generally outward from said supporting wall and sized for mounting to said chamber, and an inner flange extending generally inward from said supporting wall;

a target of said sputtering material having a generally planar surface, an outer periphery of said target being sized and configured to fit within said supporting wall of said adapter, such that said generally planar surface of said target overlays said inner flange of said adapter; and

mechanical couplers mechanically joining said target to said inner flange of said adapter.

2. The target assembly of claim 1, wherein said supporting wall has a generally cylindrical shape and said target has a generally disk shape.

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3. The target assembly of claim 1, wherein said inner flange of said adapter defines openings for receiving said mechanical couplers.

4. The target assembly of claim 3, wherein said target defines openings in said generally planar surface arranged in mating relation to said openings defined by said inner flange of said adapter.

5. The target assembly of claim 4 wherein said openings defined in said target are threaded, and said mechanical couplers comprise bolts inserted through the openings defined by said adapter and threaded into said openings defined by said target.

6. The target assembly of claim 1 wherein said sputtering material is a refractory metal.

7. The target assembly of claim 1 wherein said sputtering material is one of Titanium, Gold, or Aluminum.

8. The target assembly of claim 1 wherein said sputtering material is Aluminum or an oxide thereof.

Sub B1  
9. A target for installation in a vacuum chamber for processing a substrate by causing sputtering material to be ejected from the target onto said substrate, comprising  
a generally disk-shaped section having two generally planar surfaces and a cylindrical outer periphery, manufactured homogeneously of said sputtering material,

said disk shaped section defining threaded holes in one said generally planar surface proximate said outer periphery of said disk shaped section.

Sub C<sup>2</sup>  
10. The target of claim 9 wherein said generally disk-shaped section is sufficiently self-supporting to bear stress arising when said section is mounted to said vacuum chamber supported only proximate said outer periphery, and said chamber is evacuated to initiate sputtering, such that one generally planar surface of said section is exposed to vacuum pressure while an opposite side thereof is not exposed to reduced pressure.

11. The target of claim 9 wherein said sputtering material is a refractory metal.

*Sub C<sup>3</sup>* 12. The target of claim 9 wherein said sputtering material is one of Titanium, Gold, or Aluminum.

13. The target of claim 9 wherein said sputtering material is Aluminum or an oxide thereof.

14. Apparatus for processing a substrate by causing sputtering material to be ejected from a target onto said substrate, comprising:

a vacuum chamber an inner peripheral surface defining an aperture for receiving a target, said inner peripheral surface including a supporting wall and an inner flange extending generally inward from said supporting wall, and an anode for supporting the substrate in proximal face-to-face relation to said target;

a target of said sputtering material having a generally planar surface, an outer periphery of said target being sized and configured to fit within said supporting wall of said chamber, such that said generally planar surface of said

target overlays said inner flange of said chamber;  
and

mechanical couplers mechanically joining  
said target to said inner flange of said chamber.

15. The apparatus of claim 14, wherein  
said supporting wall has a generally cylindrical  
shape and said target has a generally disk shape.

16. The apparatus of claim 14, wherein  
said inner flange of said chamber defines openings  
for receiving said mechanical couplers.

17. The apparatus assembly of claim 16,  
wherein said target defines openings in said  
generally planar surface arranged in mating relation  
to said openings defined by said inner flange of  
said chamber.

18. The apparatus of claim 17 wherein said  
openings defined in said target are threaded, and  
said mechanical couplers comprise bolts inserted  
through the openings defined by said chamber and  
threaded into said openings defined by said target.

19. The apparatus of claim 14 wherein said sputtering material is a refractory metal.

20. The apparatus of claim 14 wherein said sputtering material is one of Titanium, Gold, or Aluminum.

21. The apparatus of claim 14 wherein said sputtering material is Aluminum or an oxide thereof.

22. The apparatus of claim 14 wherein said chamber comprises an adapter mounted to said chamber, said adapter comprising said supporting wall and said inner flange.

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